

NEW ENGLAND NOTE

A FLORA OF THE VASCULAR AND NON-VASCULAR
PLANTS OF NANTUCKET, TUCKERNUCK, AND
MUSKEGET ISLANDS

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Nantucket has been recognized widely as a botanical “hotspot” with one of the greatest concentrations of rare species in Massachusetts. A host of well-known 19th century botanists forayed on the island in search of unusual material. Many of their collections still are intriguing. The first recorded plant specimen from Nantucket dates from 1827, when Thomas A. Greene of New Bedford made a collection of slender marsh-pink (*Sabatia campanulata*) from the island. Two years later, James W. Robbins (of *Potentilla robbinsiana* fame) made a second collection of the same species from Greene’s site “in moist hollows in Squam.” Interest in this species continues to be keen as it is known in Massachusetts only from two sites on Cape Cod and Nantucket. It was to be the first in a long line of notable records to come from Nantucket. Another of the early collections made on the island was seabeach amaranth (*Amaranthus pumilus*), collected by S. T. Olney in 1849. It has not been seen again in the state.

In 1888, Maria Owen published a flora of the island that included over 600 species. Her list was by no means definitive, but it was one of the first floras published for any county in Massachusetts. Eugene P. Bicknell produced the most definitive work on the Nantucket flora with his “Ferns and Flowering Plants of Nantucket,” published in a series of installments between 1908 and 1919 in the *Bulletin of the Torrey Botanical Club*. Now, nearly eight decades later, we have compiled a comprehensive flora that builds upon the work of these earlier botanists (Sorrie and Dunwiddie 1996; Dunwiddie and Sorrie 1996).

Our flora is somewhat broader both geographically and taxonomically than earlier works. In addition to the island of Nantucket, we have included records from the other two vegetated islands in Nantucket County, Muskeget and Tuckernuck. Our work also includes lichens, mosses, and other bryophyte records. The published flora includes common and scientific names and synonymy for each species, as well as habitat and abundance information, state ranks for rare species, data on origin (native versus introduced), and notations for potentially invasive species. The flora also is available in a computerized relational database. This database contains all of the above information, in addition to fields noting life form (tree, shrub, graminoid, etc.), duration (annual, biennial, or perennial), records of our own collections and sightings, and notations indicating which previous authors also reported a Nantucket occurrence for a species.

Our flora includes a total of 1265 vascular taxa, including species, varieties, subspecies, and hybrids. Thirty-nine percent (489) were introduced to the island. This compares to the total of 1136 reported by Bicknell, 33 percent of which were non-native. Due to taxonomic revisions and re-annotations of specimens, we currently accept 982 of Bicknell's records in our flora. The number of rare species is high, with 23 endangered, 13 threatened, 15 special concern, 46 watch list, and 7 historical, according to the Massachusetts Natural Heritage and Endangered Species Program (1992). The non-vascular flora comprises 79 mosses, 19 liverworts, 1 hornwort, and 99 lichens.

Nantucket has received some of the greatest scrutiny by botanists of any area of similar size (ca. 14,000 ha) in the state. As an example of one of the most completely inventoried regional floras, therefore, it is valuable to examine what deficiencies remain in our knowledge of Nantucket species' occurrence and distribution. From such an analysis, inferences may be drawn regarding the thoroughness of our understanding of the many less intensively studied areas in New England.

Currency of records. Three hundred and twenty-six species, over one-quarter of the flora, have not been recorded in over 60 years. This partially reflects the predilections of many recent botanists, ourselves included, to scour natural habitats for unusual records, and to ignore the back yards, waste dumps, and weed lots of the island. Yet nearly half of this total (153) includes native species, many of which are not weedy. Their absence from

recent lists may not be due to inadequate searching in appropriate habitats.

Number of sites. Many species have been found only rarely on Nantucket. Bicknell noted that almost one-third of the flora (352 species: 182 native, 170 introduced) was recorded from only 1–3 sites. A comparable statistic is not available from our database, and will be the focus of future work. However, our impression is that this number has not declined greatly. About two-thirds of the 326 species for which we have no recent record (>60 years) fall into this group, and many other currently rare species are known only from the same sites where earlier botanists reported them. Lone occurrences of non-native taxa may reflect chance introductions of plants that failed to become permanently established and may no longer be present. The abundance of native species with few records suggests that many may have extremely limited distributions on Nantucket, and may be particularly susceptible to extirpation. Examples include *Gaultheria hispidula*, *Schwalbea americana*, *Botrychium simplex*, and *Cornus amomum*.

Completeness of inventory. It is impossible to determine whether every species occurring on an island the size of Nantucket (ca. 30,000 acres) has been found. Furthermore, the total is always changing as new species are introduced and become naturalized, and others disappear from the island. One approach to assessing the thoroughness of our inventory is to examine the number of new species observations in recent decades. Based on his work from 1958 to 1966 on Nantucket, MacKeever (1968) reported about 50 taxa new to the island, 9 of which were native. Since beginning our work on the island in 1980, about 60 names have been added to the Nantucket vascular plant flora that previously were not recorded; half of these were native. While some of these native species represented taxonomic changes that had not been recognized when earlier compilations of the Nantucket flora were prepared, others were undoubtedly species that simply had been overlooked by previous botanists on the island. Examples include *Scleria pauciflora* var. *caroliniana*, *Amphicarpum purshii*, *Aster acuminatus*, *Polystichum acrostichoides*, and *Amelanchier arborea*.

Our results suggest that even within a relatively small and heavily botanized area such as Nantucket, many questions remain unanswered regarding the nature of the local flora. Several points are worth considering as they may apply elsewhere.

- 1) Despite over a century and a half of extensive study, additional species continue to be found. These include species new to the island that are common elsewhere, as well as species that are rare regionally.
- 2) A large number of species are known only from a few sites. Efforts should be made to identify which of these are truly limited in distribution and not merely undercollected. Measures then can be taken to protect sites of locally rare taxa to prevent their extirpation.
- 3) Our knowledge of much of the current flora may be woefully dated. The preparation and maintenance of large, private herbaria by serious amateurs as well as professionals was relatively widespread at the turn of the century. This practice virtually has disappeared. As a result, much of our information on the presence and distributions of many species is out of date by many decades.
- 4) Recent work often is conducted by professionals employed by conservation organizations and agencies who focus primarily on rare native species. The tendency to overlook other components of the flora, particularly non-native taxa, leaves conspicuous gaps in our knowledge of local and regional plant geography.

ACKNOWLEDGMENTS AND ADDITIONAL INFORMATION. The production and publication of the Nantucket flora represent a cooperative effort by the Massachusetts Audubon Society, Massachusetts Natural Heritage and Endangered Species Program, Nantucket Maria Mitchell Association, and The Nature Conservancy. Kendra Buresch and Carol Moffitt assisted with much of the document research, data input, and editorial portions of this project. In addition to the support of our own organizations and the co-sponsors who helped bring this work together, we are especially grateful for the generosity of the Cox Foundation, Inc. for funding this project. Copies of the flora are available to libraries and serious researchers free of charge while supplies last. The computer database also is available on two 3.5 inch diskettes.

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